

■ Leukaemia

Leukaemia in adults is a diverse group of malignancies, accounting for 3% of all cancer incidence and mortality. It is currently ranked seventh among cancer sites by cancer deaths for males and eighth for females, or ninth for both genders by incident cases.

The incidence rate of leukaemia has increased steadily over the past half century, particularly among males. Between 1956 and 1996 the average annual age standardised incidence rate for males almost doubled, increasing from 9 per 100,000 in 1956 to 17 per 100,000 in 1996, while the annual number of registrations among males almost quadrupled over the same period, from 67 to 259. Among females the corresponding rate increased less dramatically, from 7 per 100,000 to 10 per 100,000, while the annual number of registrations more than tripled, rising from 58 in 1956 to 202 in 1996.

For both genders the increase in risk of leukaemia was responsible for less than one-third of the total increase in the number of leukaemia registrations. Population growth was the major driving force behind the large increase in the adult leukaemia burden.

In contrast to the increasing incidence trend, the leukaemia mortality rate has declined slightly over the past three decades. Between 1972 and 1997 the average annual age standardised mortality rate decreased from 10 per 100,000 among males and 6 per 100,000 among females to 9 per 100,000 and 5 per 100,000, respectively. This downward trend in mortality risk, however, was more than offset by the demographic trend, yielding a net 40% increases in leukaemia deaths among both genders: from 95 to 132 deaths among males and from 71 to 103 deaths among females.

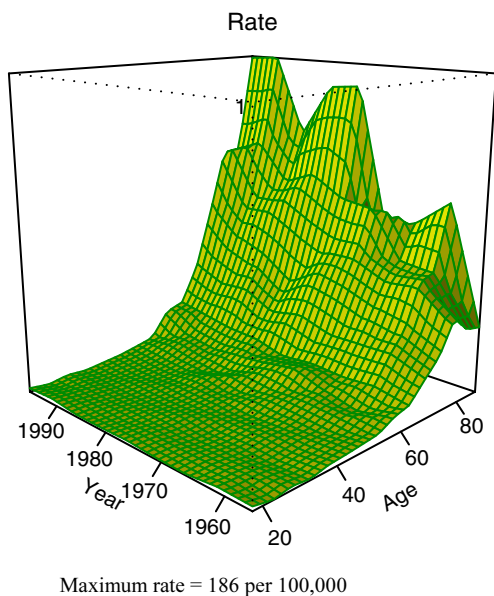
Both the incidence and the mortality rates of leukaemia among adults show an exponential increase with age. The incidence rate at 65 years and above is five times that at ages 45–64, and the mortality rate is seven times higher. Males experience leukaemia rates approximately 70% higher than those of females. There is no clear pattern of ethnic or socioeconomic differentials in leukaemia risk.

The contrasting historical trends in leukaemia incidence and mortality rates are forecast to continue. By 2011 the age standardised incidence rate is projected to increase by one-quarter, to 21 per 100,000 (CI 17 – 26) among males and 13 per 100,000 (CI 10 – 17) among females. At the same time the annual number of registrations is expected to increase by two-thirds to three-quarters, reaching 450 registrations (CI 340 – 592) among males and 327 registrations (CI 233 – 447) among females. The excess growth in registration numbers over incidence rates is indicative of the strong impact of demographic trends.

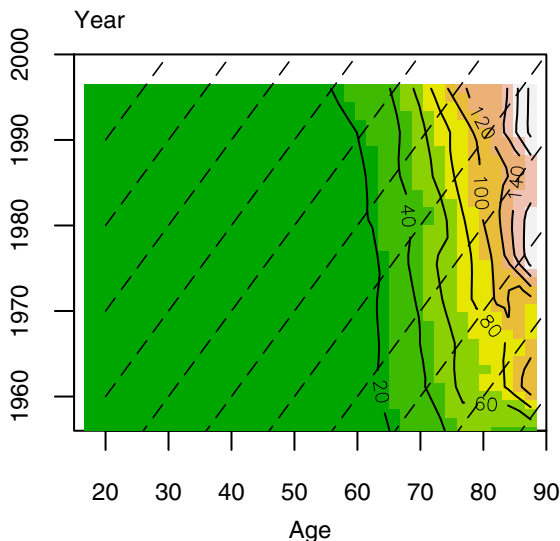
The age standardised leukaemia mortality rate is projected to decrease further, to 8 per 100,000 (CI 6 – 9) among males and 4 per 100,000 (CI 4 – 5) among females by 2012. Despite this downward trend in the mortality rate, an increase in the number of leukaemia deaths is projected, reaching 163 deaths (CI 113 – 218) among males and 112 deaths (CI 84 – 162) among females by 2012. Again, this reflects the impact of demographic trends, which more than offset any decrease in risk.

Figure 20.1 Historical trends in age specific rates, Leukaemia, males

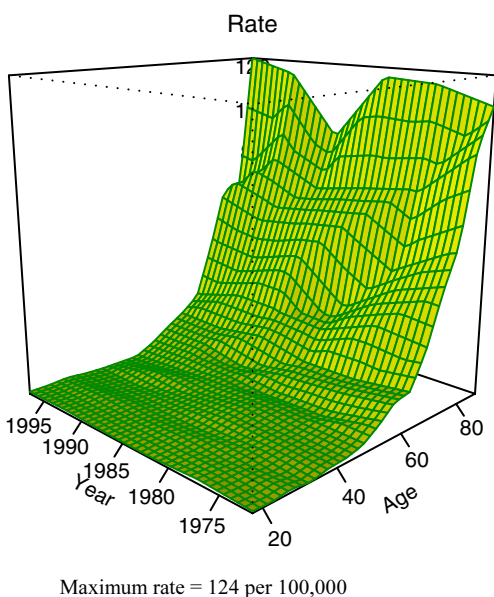
(a) Male incidence rates, perspective plot



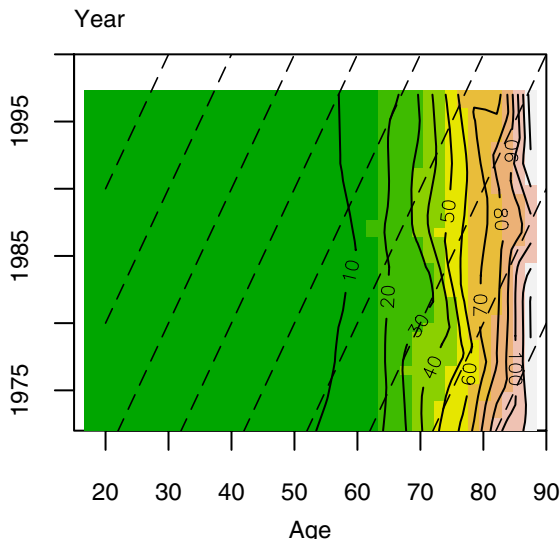
(b) Male incidence rates, contour plot



(c) Male mortality rates, perspective plot



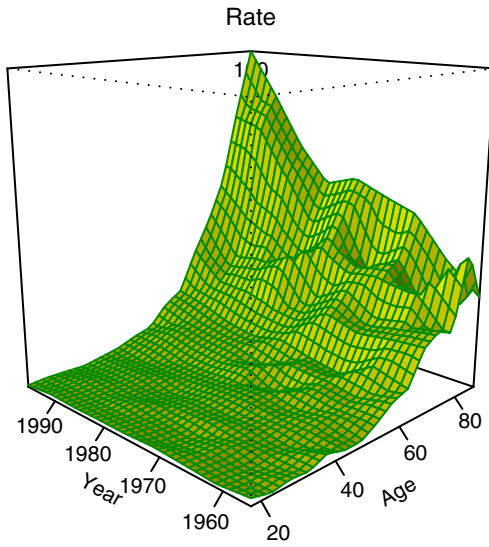
(d) Male mortality rates, contour plot



Please refer to Chapter 2 for interpretation of charts

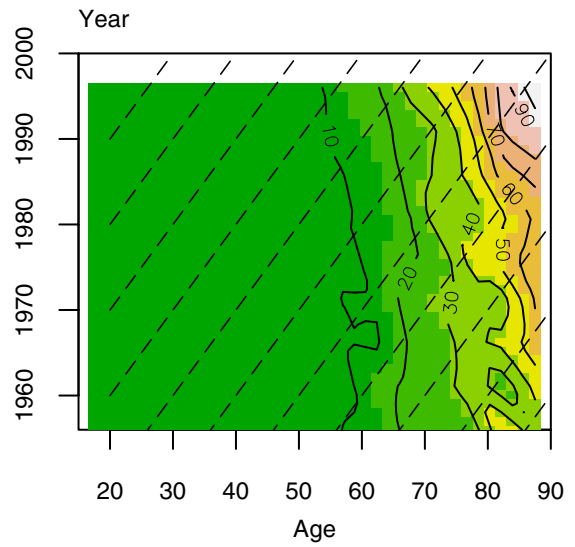
Figure 20.2 Historical trends in age specific rates, leukaemia, females

(a) Female incidence rates, perspective plot

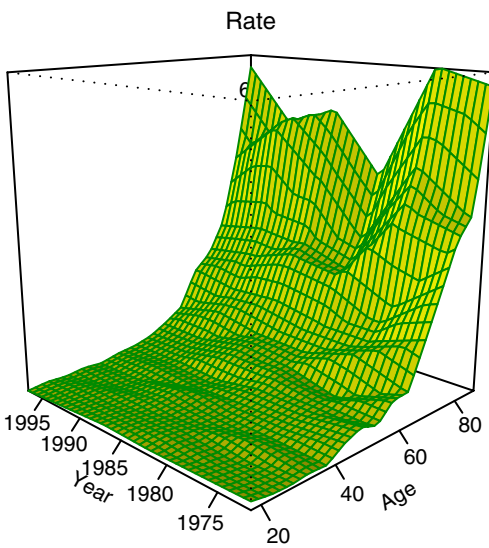


Maximum rate = 108 per 100,000

(b) Female incidence rates, contour plot



(c) Female mortality rates, perspective plot



Maximum rate = 69 per 100,000

(d) Female mortality rates, contour plot

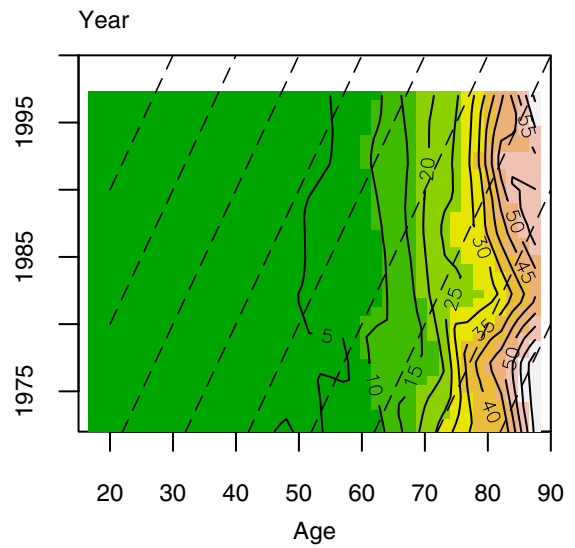
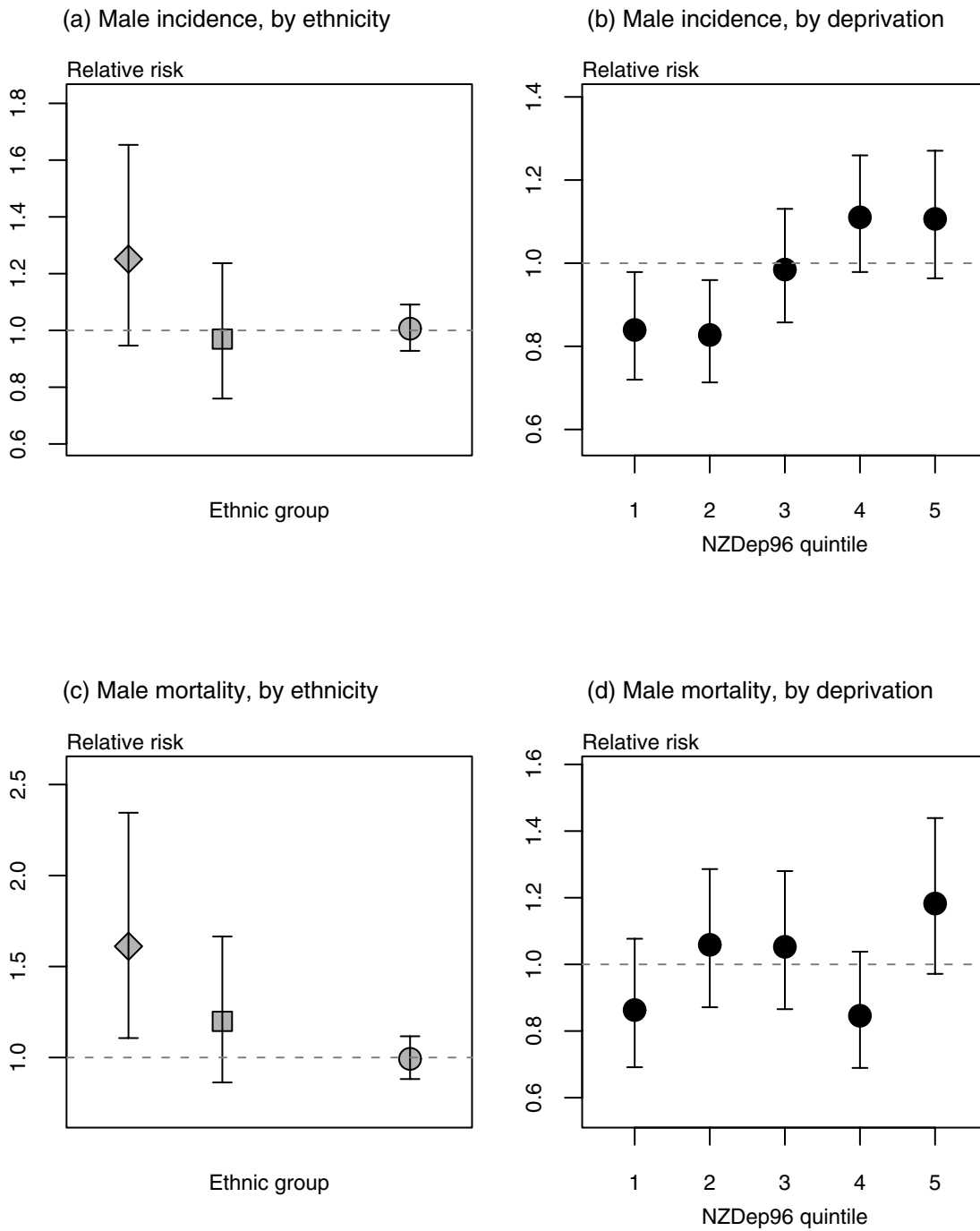


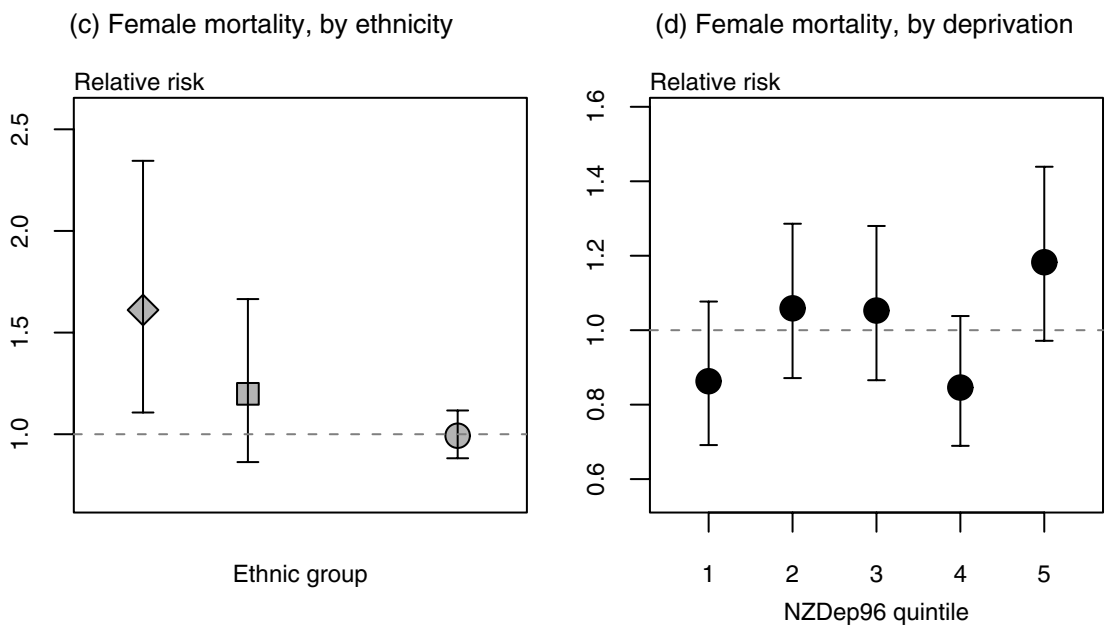
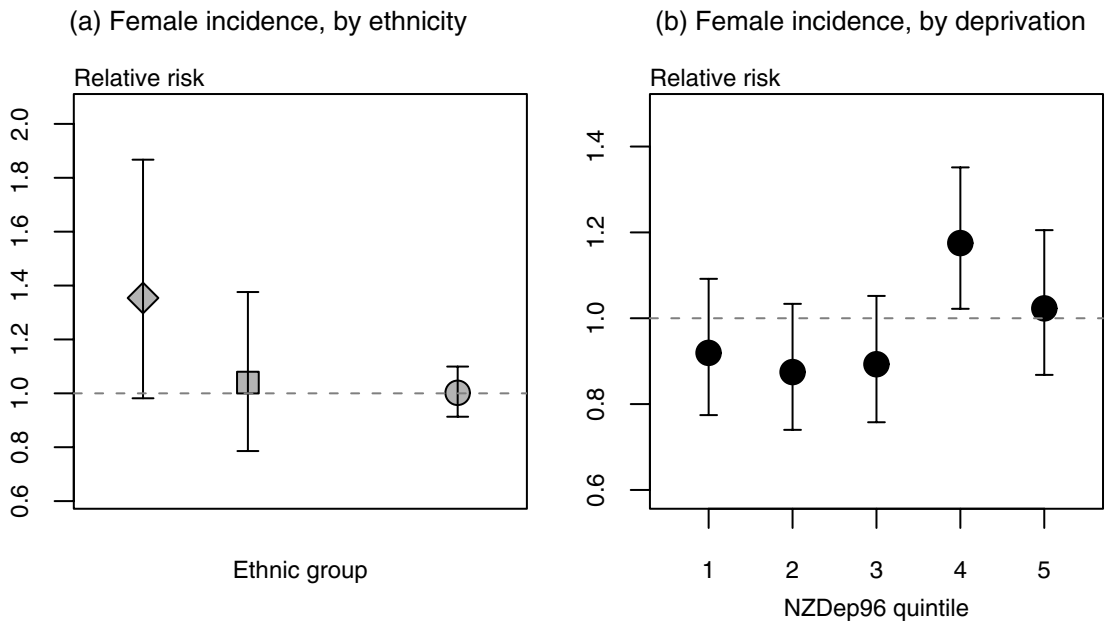
Figure 20.3 Relative risk 1996/97, leukaemia, males



Ethnic group key:

- ◆ sole Māori
- total Māori
- non-Māori

Figure 20.4 Relative risk 1996/97, leukaemia, females

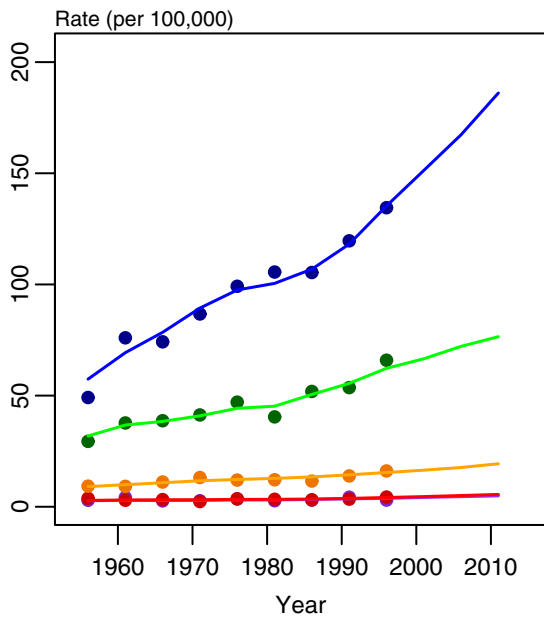


Ethnic group key:

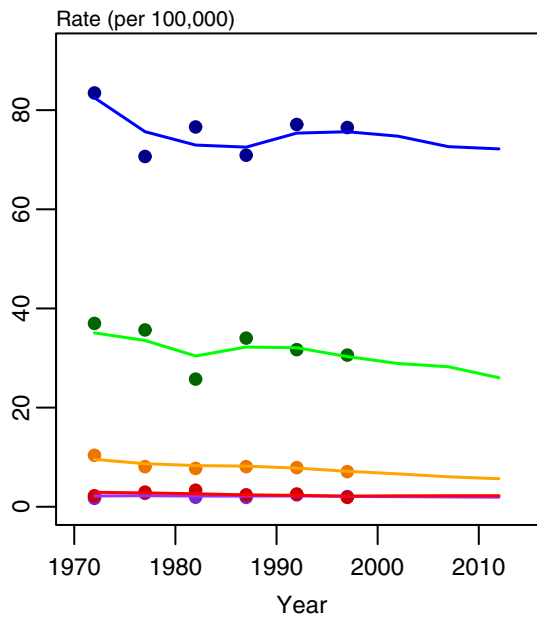
- ◆ sole Māori
- total Māori
- non-Māori

Figure 20.5 Trends and projections of life cycle stage specific rates, leukaemia

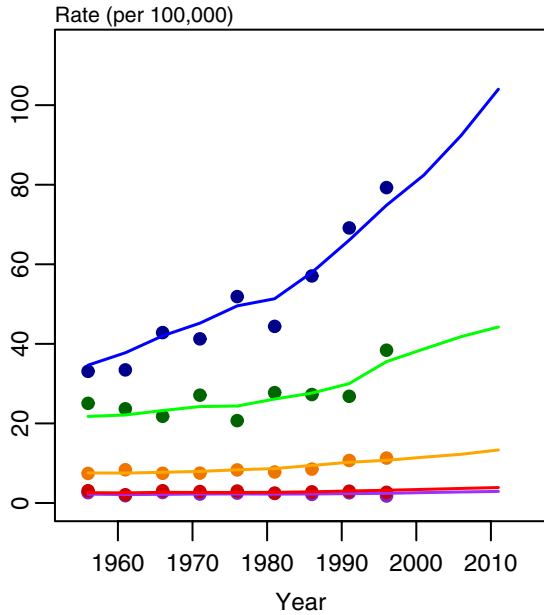
(a) Male incidence rates



(b) Male mortality rates



(c) Female incidence rates



(d) Female mortality rates

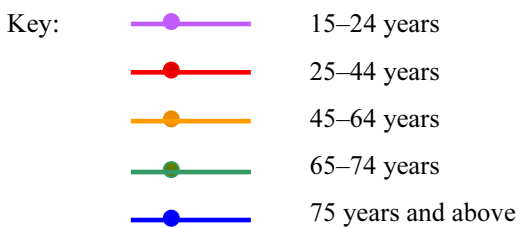
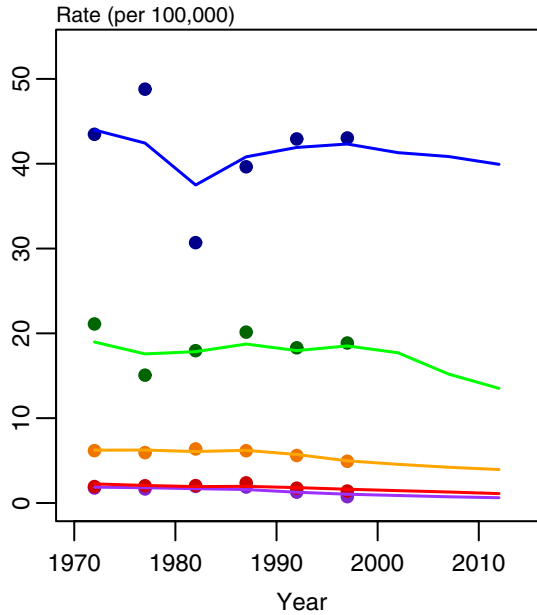
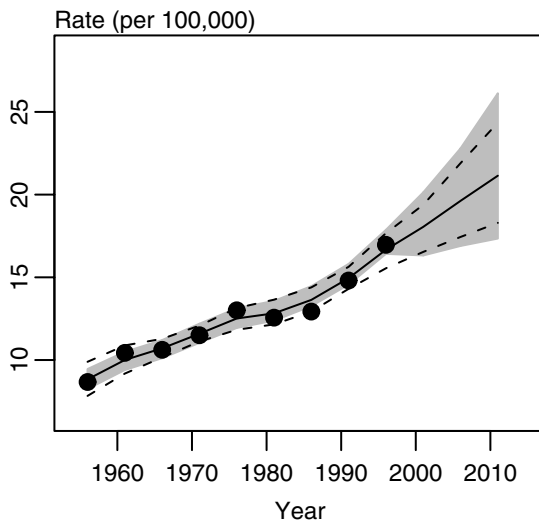
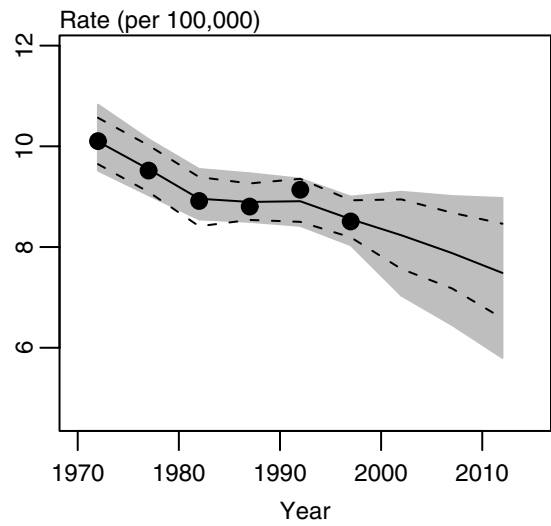


Figure 20.6 Trends and projections of age standardised rates, leukaemia

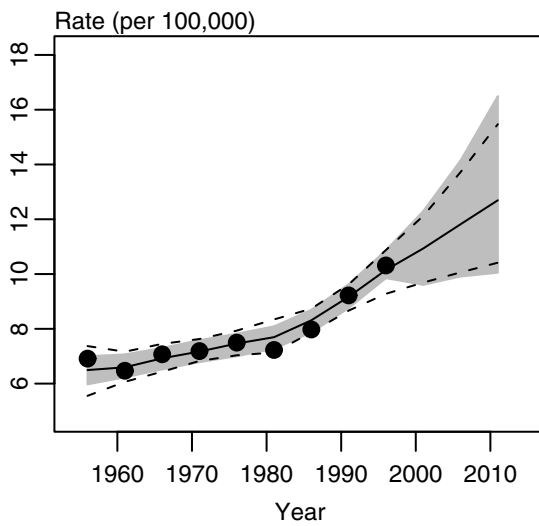
(a) Male incidence rates



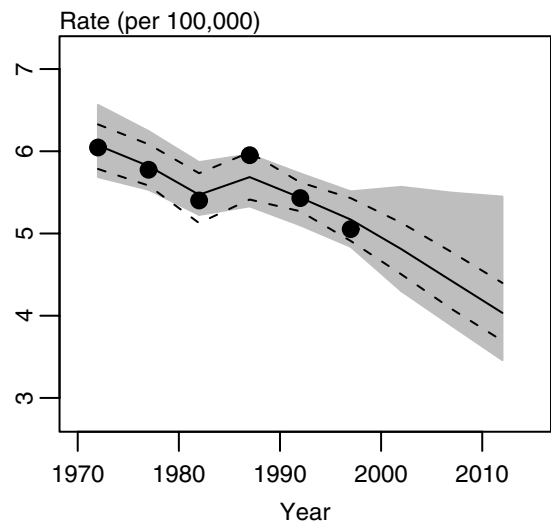
(b) Male mortality rates



(c) Female incidence rates



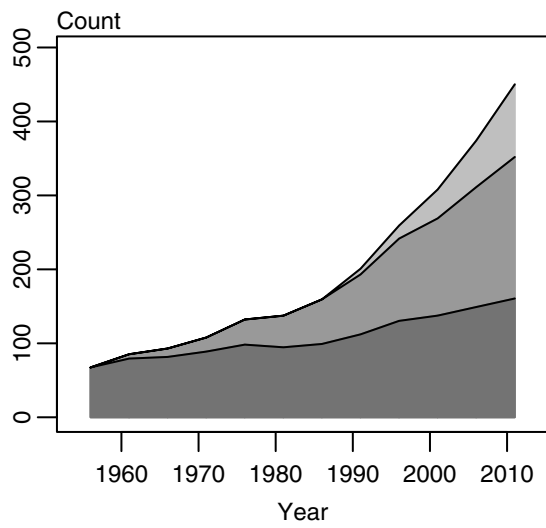
(d) Female mortality rates



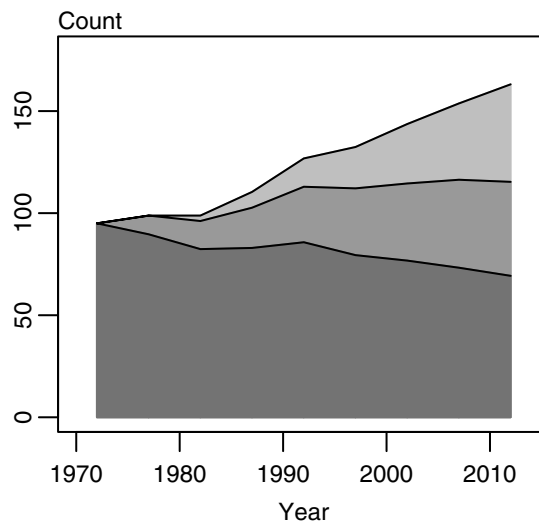
Key: ● Observed
 — Fitted and projected
 - - Minimum and maximum estimates
 ■ 90% Bayesian credible interval

Figure 20.7 Drivers of change in the cancer burden, leukaemia

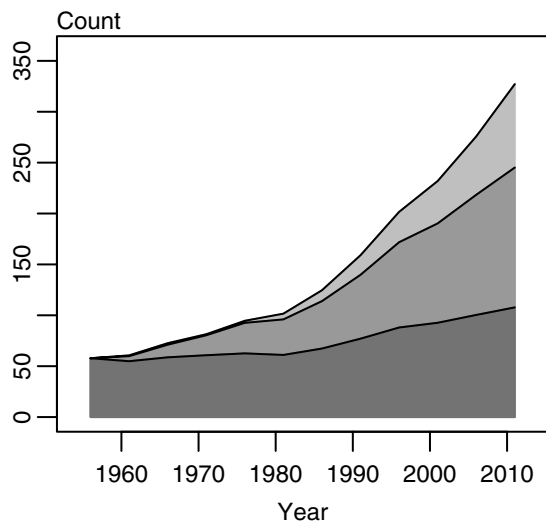
(a) Male registrations



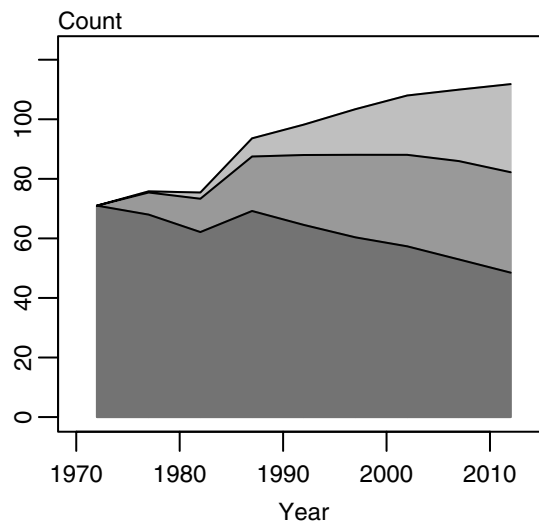
(b) Male deaths



(c) Female registrations



(d) Female deaths



Key:
 Risk effect
 Population size effect
 Population ageing effect

Table 20.1 Key results, leukaemia

Males

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	17	21 (17 – 26)	25	9	8 (6 – 9)	-12
15–44	4	5 (4 – 7)	-	2	2 (1 – 3)	-
45–64	16	19 (15 – 26)	20	7	6 (5 – 9)	-20
65+	91	121 (91 – 157)	33	47	44 (30 – 58)	-6
<i>Number of cases</i>						
15+	259	450 (340 – 592)	74	132	163 (113 – 218)	23
15–44	32	45 (32 – 58)	41	16	18 (10 – 21)	13
45–64	60	104 (80 – 141)	73	27	31 (25 – 48)	15
65+	167	301 (228 – 392)	80	89	114 (78 – 149)	28

Females

	Incidence			Mortality		
	1996	2011 (CI)	change (%)	1997	2012 (CI)	change (%)
<i>Age standardised or age specific rate (per 100,000)</i>						
15+	10	13 (10 – 17)	23	5	4 (4 – 5)	-
15–44	2	4 (3 – 5)	-	1	1 (1 – 2)	-
45–64	11	13 (10 – 19)	18	5	4 (3 – 6)	-
65+	57	73 (51 – 98)	27	30	26 (19 – 36)	-14
<i>Number of cases</i>						
15+	202	327 (233 – 447)	62	103	112 (84 – 162)	9
15–44	20	30 (22 – 43)	50	10	8 (6 – 13)	-20
45–64	42	74 (54 – 104)	76	19	22 (17 – 34)	16
65+	139	223 (157 – 301)	60	74	82 (61 – 115)	11

CI = 90% Bayesian credible interval

Percentage change omitted when estimate is not robust because of small numbers.

